

**Extended Data Table 1. | Material parameters used in the TTM simulations for Cu.**

Parameter	Value
Electron heat capacity, $C_e = \gamma_e T_e$	$\gamma_e = 96.6 \text{ J}/(\text{m}^3 \cdot \text{K})$
Lattice heat capacity, $C_l$	$3.45 \times 10^6 \text{ J}/(\text{m}^3 \cdot \text{K})$
Electron thermal conductivity, $K_e$	$230 \cdot \left(\frac{T_e}{T_l}\right) \text{ W}/(\text{m} \cdot \text{K})$
Electron–phonon coupling, $G$	$1.0 \times 10^{17} \text{ W}/(\text{m}^3 \cdot \text{K})$
Mass density, $\rho$	$8960 \text{ kg}/\text{m}^3$
Complex refractive index (400 nm)	$n = 1.34 + 1.82i$